

MULTIPLE ZETA VALUES SEMINAR

Miércoles, 26 de noviembre de 2014

15:00 h., Aula Gris 2 (ICMat, Campus de Cantoblanco)

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Deformations of shuffles
and quasi-shuffles

Resumen:

The talk will be concerned with deformations of the shuffle Hopf algebra structure which can be defined on the tensor algebra over a commutative algebra A . Such deformations, leading for example to the quasi-shuffle algebra $QSh(A)$, can be interpreted as natural transformations of the functor Sh , regarded as a functor from commutative nonunital algebras to coalgebras. The monoid of natural endomorphisms of the functor Sh appears to be isomorphic to the monoid of formal power series in one variable without constant term under composition, so that in particular, its natural automorphisms are in bijection with formal diffeomorphisms of the line. These transformations can be interpreted as elements of the Hopf algebra of word quasisymmetric functions $WQSym$, and in turn define deformations of its structure. This leads to a new embedding of free quasi-symmetric functions into $WQSym$, whose relevance is illustrated by a simple and transparent proof of Goldberg's formula for the coefficients of the Hausdorff series.

Based on a joint work with L. Foissy and JY. Thibon.